

**REMARKS**

Please amend claims 5, 9, 15, 19, 20 and 22-24 as indicated above to correct clerical errors that were mistakenly introduced in the claims by previous claim listings. Claims 1-15 and 19-26 remain pending in the application. Reconsideration is respectfully requested in light of the following remarks.

**Section 103(a) Rejections:**

The Examiner rejected claims 9-15 under 35 U.S.C. § 103(a) as being unpatentable over Wilson et al. (U.S. Pat. 6,671,222) (hereinafter "Wilson") when taken in view of Fort (U.S. Pat. 4,320,472). Applicant respectfully traverses this rejection for at least the following reasons.

In regard to claim 9, contrary to the Examiner's assertion, Wilson in view of Fort does not teach or suggest detecting a seismic event at a seismic receiver, converting the seismic event into an analog electrical signal, converting the analog electrical signal into multiple digital data points within the receiver, storing the multiple digital data points within the receiver, awaiting a control signal to transfer a batch of the digital data points, and transferring the batch of the stored digital data points from the receiver to a remote collection device upon receiving the control signal. The Examiner relies upon Wilson to teach all the limitations of claim 9 except storing the data. However, Wilson (alone or in combination with Fort) fails to teach numerous other limitations recited in claim 9 as well. For example, Wilson does not teach converting the analog signal into multiple digital data points within the receiver that detected the seismic event and storing the multiple digital data points within the same receiver. The operation of Wilson's DAU referred to by the Examiner is not relevant because Wilson's DAU is not a seismic receiver that detects a seismic event. Instead, Wilson teaches that conventional geophones are used to detect the seismic event (see geophones 110a-d in FIG. 1 and 410a-c in FIG. 4A). Thus, it is the geophones (110a-d, 410a-c) in Wilson that correspond to the seismic receiver of Applicant's claim 1. However, the geophones in Wilson clearly

do not convert an analog signal into multiple digital data points and store the multiple digital data points. Nor do the geophones in Wilson transmit a batch of digital data points.

The Examiner's reliance upon Fort is also misplaced. Contrary to the Examiner's assertion, Fort does not teach or suggest storing the multiple digital data points within a seismic receiver that detects a seismic event. To the contrary, Fort explicitly teaches that his geophones only store a single digital data point. The Examiner refers to the digital storage unit of Fort's ADC. However, Fort describes his digital storage unit as storing only a single 12-bit value representing the sign and amplitude of a single digital data point (Fort -- col. 7, line 65 -- col. 8, line 24; Fig. 4). This 12-bit value in Fort is a single data point sample (Fort -- col. 9, lines 7-13). Thus, neither Fort nor Wilson describes a seismic receiver that stores multiple digital data points from an analog signal of a seismic event detected at the receiver.

Nor does the combination of Wilson and Fort teach or suggest transferring a batch of stored digital data points from the receiver that detected the seismic event to a remote collection device upon receiving a control signal. To the contrary, Fort explicitly states that his geophone transmits only a single 12-bit data point each time it is activated (Fort -- col. 9, lines 1-24). Nor does the system of Wilson transmit a batch of stored digital data points. As noted above, the geophone receivers in Wilson are conventional geophones that do not transmit any digital data at all. The "data package" transmitted by the DAU in Wilson is not relevant because Wilson's DAU is not the receiver that detects the seismic event.

Moreover, the "data package" in Wilson is not described as including a batch of digital data points. A data package does not necessarily include multiple digital data points. As is well known in the art of data communications, a data package may consist of only a header (address) and a single data value. The term "data package" does not require multiple data points to be included in the package. Nowhere does Wilson state that his data package includes multiple digital data points. Thus, neither Wilson nor Fort,

alone or in combination, teaches transferring a batch of stored digital data points from the receiver that detected the seismic event to a remote collection device upon receiving a control signal.

In regard to claim 10, Wilson and Fort do not teach or suggest that the control signal to transfer the batch of digital data points is generated from another receiver. There is no such control signal generated by the geophone receivers in either Wilson or Fort. Accordingly, the Examiner has failed to state a *prima facie* rejection of this claim.

In regard to claim 11, Wilson and Fort do not teach or suggest that the control signal to transfer the batch of digital data points is generated from within the same receiver that detected the seismic event and stored the multiple digital data points. There is no such control signal generated within any the geophone receiver of either Wilson or Fort. Accordingly, the Examiner has failed to state a *prima facie* rejection of this claim.

In regard to claim 13, Wilson and Fort do not teach or suggest amplifying the analog electrical signal. There is no mention at all in either Wilson or Fort of amplifying the analog signal of the seismic event. Accordingly, the Examiner has failed to state a *prima facie* rejection of this claim.

In regard to claim 14, Wilson and Fort do not teach or suggest that the batch transferring is accomplished at least in part with a control circuitry located within a casing of the seismic receiver. The Examiner made no attempt to explain how the limitations of claim 14 are taught by the cited art. As noted above, the geophone receivers of Wilson and Fort do not transfer a batch of stored data points and thus do not include any control circuitry within their casings for batch transferring. Accordingly, the Examiner has failed to state a *prima facie* rejection of this claim.

In regard to independent claim 15, Wilson and Fort do not teach or suggest determining a digital signal indicative of seismic energy within the seismic receiver that collects the seismic energy, storing multiple digital data points of the digital signal in the

receiver, and transmitting a batch of the stored digital data points of the digital signal from the receiver to a collection device. The arguments discussed above in regard to independent claim 9 also apply to independent claim 15.

In further regard to independent claim 15, the cited art does not teach or suggest that the step of transmitting is performed in response to a signal from another receiver. The Examiner made no attempt to explain how this limitation of claim 15 is taught by the cited art. There is no such signal generated by another geophone receiver in either Wilson or Fort. Accordingly, the Examiner has failed to state a *prima facie* rejection of independent claim 15.

The Examiner rejected claims 1-8, 22 and 23 under 35 U.S.C. § 103(a) as being unpatentable over Fort when taken in view of Wilson. Applicant respectfully traverses this rejection for at least the following reasons.

In regard to claim 1, the cited art does not teach or suggest a seismic receiver comprising: a casing; a seismic energy detector that detects the seismic energy and converts the detected seismic energy into an analog electrical signal; an analog to digital converter, coupled to the seismic energy detector, that converts the analog electrical signal into multiple digital data points, wherein the receiver is configured to store the multiple digital data points; and a digital signal transmission circuitry, coupled to the analog to digital converter, that transmits a batch of the stored digital data points to the data recorder; wherein the seismic energy detector, the digital transmission circuitry, and the analog to digital converter are housed within the casing. As discussed above in regard to claim 9, the geophone receiver of Fort does not store multiple digital data point, nor does it transfer a batch of digital data points. Nor does Wilson, alone or in combination with Fort, teach or suggest these features. Please refer to the discussion of claim 9 above for further explanation of the shortcomings of Fort and Wilson in regard to these limitations. These arguments also apply in regard to independent claims 22 and 23.

In regard to claim 3, the cited art does not teach or suggest an amplifier, coupled to the analog to digital converter, that amplifies the analog signal. There is no mention at all in either Wilson or Fort of such an amplifier. Accordingly, the Examiner has failed to state a *prima facie* rejection of this claim.

In regard to claim 4, the cited art does not teach or suggest control circuitry that controls the amplifier. The Examiner made no attempt to explain how this limitation of claim 4 is taught by the cited art. There is no such control circuitry in either Wilson or Fort. Accordingly, the Examiner has failed to state a *prima facie* rejection of this claim.

In regard to claim 6, the cited art does not teach or suggest control circuitry that provides clock signals to the analog to digital converter. The Examiner made no attempt to explain how this limitation of claim 6 is taught by the cited art. There is no such control circuitry in either Wilson or Fort. In fact, the ADC in Fort specifically does not utilize a clock signal. Instead, a counter in Fort's ADC is driven by the DGP signal from a pulse width modular according to the amplitude of the received seismic wave (Fort -- Fig. 2; col. 7, lines 34-53). Accordingly, the Examiner has failed to state a *prima facie* rejection of this claim.

In regard to claim 8, the cited art does not teach or suggest that the digital transmission circuitry and the analog to digital converter are embodied on a printed circuit board (PCB) in the casing. There is no mention in either Wilson or Fort of such a printed circuit board embodying digital transmission circuitry and an analog to digital converter within the casing of a seismic receiver. Accordingly, the Examiner has failed to state a *prima facie* rejection of this claim.

The Examiner rejected claims 19-22 under 35 U.S.C. § 103(a) as being unpatentable over Fort in view of Wilson as applied to claim 1 above, and further in view of Orban et al. (U.S. Pat. 6,353,577) (hereinafter "Orban"). Applicant respectfully traverses this rejection for at least the following reasons.

In regard to independent claims 19 and 22, the cited art fails to teach or suggest all the limitations of these claims for at least the reasons noted above in regard to claims 1 and 9. Orban does not overcome any of the deficiencies of Fort and Wilson noted above in regard to the independent claims.

In regard to claim 21, the cited art does not teach or suggest that the board can be folded on itself without breaking the electrical connections contained thereon. The PCB in Orban is not described as capable of being folded on itself without breaking the electrical connections contained thereon. Accordingly, the Examiner has failed to state a *prima facie* rejection of this claim.

**Allowed Claims:**

Claims 24-26 are allowed.

CONCLUSION

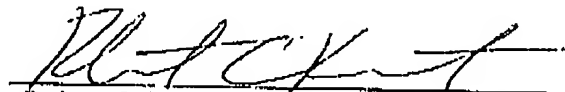
Applicants submit the application is in condition for allowance, and prompt notice to that effect is respectfully requested.

If any fees are due, the Commissioner is authorized to charge said fees to Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 501505/5932-00100/RCK.

Also enclosed herewith are the following items:

- ☐ Return Receipt Postcard
- ☐ Petition for Extension of Time
- ☐ Notice of Change of Address
- ☐ Other:

Respectfully submitted,



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